

Bugs R All

Newsletter of the Invertebrate Conservation & Information Network of South Asia (ICINSA)

Observation of a unique nesting in Bullhorn Ant *Polyrhachis lacteipennis*



Image: 1. Lateral view | 2. Front view of worker of *Polyrhachis lacteipennis*.

The ant species *Polyrhachis lacteipennis* (Smith, 1858) (Image 1 & 2) belongs to the subfamily Formicinae of the family Formicidae. This species is black in colour and has characteristic three pairs of spines (Image 1). The largest pair is located in the petiole and curve to the shape of abdomen. The second pair of spine is moderate in size and located in the propodeum. The tips of these spines are curve outward. The last pair of spine is short and thick and located in the pronotum. This species is also called bullhorn ant because the petiolar spines look like horn of a bull (Narendra & Kumar 2006).

This species is capable of nesting in subterranean, lignicolous, and arboreal locations (Robson & Kohout 2007). They prepare their nests by a silk (Robson & Kohout 2007; Karmakar et al. 2012) which is secreted by both the larvae and adult workers (Karmakar et al. 2012).

Narendra & Kumar (2006) have reported that these ants construct carton nests at the base of trees, by cementing twigs with their salivary exudates.

In Barnoti (32.431°N, 75.431°E, 354m) Kathua, Jammu & Kashmir in an agricultural

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Image 3. Sac like nest of *Polyrhachis lacteipennis*.

land in January 2019, we had observed an interesting and unique nesting structure of this species. The species was found to build a sac like structure (Image 3) and the whole colony was found to be packed within the sac and there was no opening in that structure. The rubber like nest material was thin and whitish. The nest was built along the way of the tunnelling done by the species. It was found covering all the tunnels of the nest (Image 4–5). The dimension of the structure was about 700 × 550 × 450 mm. The nest was found under the stone in an agricultural field and during the observation time, the atmospheric temperature was 18.6°C. The species was identified by using the key illustrated by Karmaly (2004).

Temperature is an important factor for all ectothermic organisms including ants. In ants and termites, the upper part of the nest, the mound, often works as a solar

collector and can also have an efficient ventilation system and some species of ants build their colonies underneath a rock in the winter (Kadochová & Frouz 2013). The rock warm up under the sun and provide sufficient heat to sustain the colony until they can emerge again in spring (Kadochová & Frouz 2013). Maintenance of high inner nest temperature increases the rate of sexual brood development and thereby increases the colony fitness (Brian 1973; Porter & Tschinkel 1993; Kadochová



Image 4. Below ground structure of the nest of *Polyrhachis lacteipennis*.

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Image 5. Inner view of the nest of *Polyrhachis lacteipennis*.

& Frouz 2013). The present observation on this new nesting strategy in bullhorn ants seems to be developed to prevent them from cold. It is recommended that further study should be carried out on the behavioural ecology of this species.

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